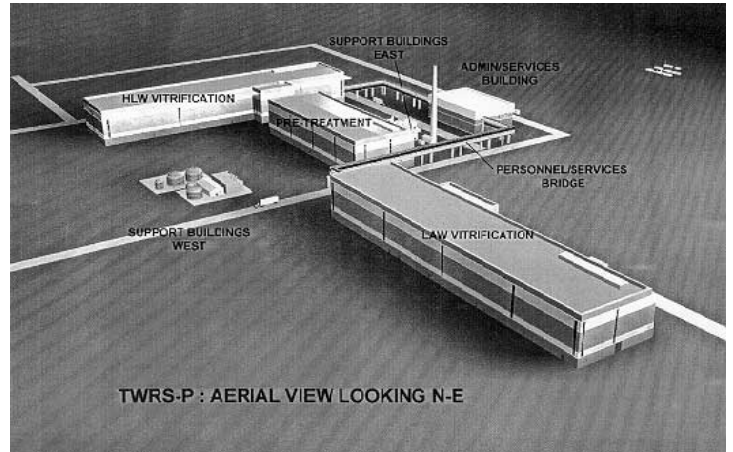
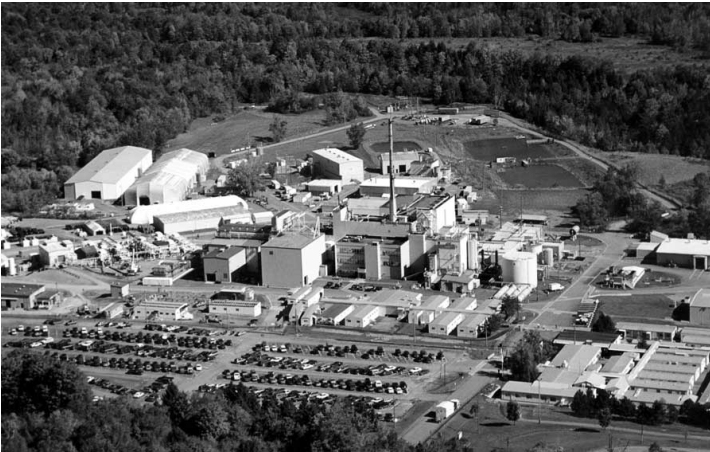




Waste Management Fiscal Year 1998 Progress Report



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Mission

The mission of the Office of Waste Management program is to protect people and the environment from the hazards of chemical and radioactive waste by providing an effective and efficient system that minimizes, treats, and stores all of these wastes and disposes most of the wastes as soon as possible.

Featured on the front cover:

(top left) Aerial view of West Valley Demonstration Project in West Valley, New York, where high-level waste is vitrified for future disposal in a Federal geologic repository.

(top right) Conceptual photo of the Tank Waste Remediation System Facility planned for the Hanford Reservation in Washington.

(bottom left) The Radioactive Waste Management Complex at the Idaho National Engineering and Environmental Laboratory in Idaho Falls showing the planned location of the Advanced Mixed Waste Treatment Facility.

(bottom right) Aerial view of the Waste Isolation Pilot Plant geologic repository for transuranic waste outside Carlsbad, New Mexico.

Foreword



Department of Energy

Washington, DC 20585

December 1998

The Waste Management Program is pleased to issue the Fiscal Year 1998 Progress Report presenting program highlights and major accomplishments of the last year. This year-end update describes the current initiatives in waste management and the progress we have made toward our goals and objectives, including the results of the waste management annual performance commitments.

One of our most important program efforts continues to be opening the Waste Isolation Pilot Plant (WIPP), located near Carlsbad, New Mexico, for the deep geologic disposal of transuranic waste. WIPP is a cornerstone of the Department of Energy's national cleanup strategy and is essential to our being able to meet commitments at other sites. In May 1998, the Secretary of Energy notified Congress that WIPP is ready for disposal operations. However, our ability to begin shipments has been delayed because of regulatory and legal challenges. We are committed to working toward a solution that will enable the opening of WIPP.

A major success was achieved this year by the West Valley Demonstration Project in New York, which in June completed the project's production phase of high-level waste processing ahead of schedule and under budget. By the end of the fiscal year the project had safely vitrified over 87 percent of the high-level waste inventory into 229 canisters of solidified waste glass for temporary storage. In addition, the Defense Waste Processing Facility at Savannah River produced 250 canisters this year, bringing Savannah River's total canister inventory to 483, nearly 10 percent of the projected canister production for the entire vitrification campaign.

Another significant accomplishment this year was the award of two privatization contracts for major waste management operations, one at Oak Ridge for transuranic waste treatment, and one at Hanford for the Tank Waste Remediation System privatization project. These waste management contract awards represent a major contribution toward the departmental goal of reducing cleanup costs and improving program efficiency through privatized procurement.

The Waste Management Program team at Headquarters and in the field has worked hard to achieve these milestones, and the many other program activities described in this report, that further our Program's mission to accelerate cleanup and close sites. We are proud of the progress that has been made, and will continue to pursue program activities that allow us to safely and expeditiously dispose of radioactive and hazardous wastes across the complex, while reducing worker, public, and environmental risks.

A handwritten signature in cursive script that reads "Mark W. Frei".

Mark W. Frei

Acting Deputy Assistant Secretary
for Waste Management
Office of Waste Management

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I. FY 1998 Performance Measures and Commitments

For FY 1998, the Secretary of Energy's performance agreement with the President includes nine performance measures and commitments that support the U.S. Department of Energy (DOE) objective to safely and expeditiously dispose of waste generated by defense nuclear materials production and civilian nuclear research and development programs, and make defense high-level radioactive waste disposal ready. These performance measures and commitments are a key indicator of progress being made in achieving the Department's objective.

For FY 1998, the Waste Management Program successfully met or exceeded seven of the nine performance measures and commitments. The performance measures and commitments and their year-end status are:

Operational



Declare the Waste Isolation Pilot Plant (WIPP) geologic repository open for disposal of transuranic wastes and maximize timely shipment of waste from DOE sites.

On May 13, 1998, the Secretary of Energy notified Congress that the Waste Isolation Pilot Plant is ready for disposal operations. This declaration was made following the issuance by the U.S. Environmental Protection Agency (EPA) of its final rule certifying that the WIPP facility meets the Federal disposal regulations.

Ship between 388 and 592 cubic meters of transuranic (TRU) waste to WIPP for disposal from three DOE sites (the Los Alamos National Laboratory, the Rocky Flats Environmental Technology Site, and the Idaho National Engineering and Environmental Laboratory).

Despite the success of declaring WIPP open for disposal, the start-up of waste shipments is on hold pending positive resolution of regulatory and legal challenges.



Close one high-level waste tank at the Savannah River Site.

Savannah River successfully completed operational closure of high-level tank 20. The process included removing it from the authorization basis, capping interface piping, and stabilizing residues with grout.



Produce a total of 288 canisters of vitrified high-level waste for future repository disposal.¹

The Department produced 331 canisters, exceeding the performance commitment by 15 percent.

FY 1998 Year End Performance	
Defense Waste Processing Facility Savannah River Operations Office	250 canisters
West Valley Demonstration Project Ohio Operations Office	81 canisters
Total	331 canisters

Table 1. High-Level Waste Canister Production

¹ The Waste Management Program, located in the Office of Environmental Management, is responsible for the storage and treatment of high-level waste so that it is in "road ready" condition for disposal. Within the Department of Energy, the disposal of both high-level waste and the Department's spent nuclear fuel, as well as spent nuclear fuel in the commercial sector, is the responsibility of the Office of Civilian Radioactive Waste Management.

- ✓ Dispose of approximately 4,000 cubic meters of Mixed Low-level Waste (MLLW)

The Department disposed of 10,727 cubic meters of MLLW, exceeding the performance commitment by 268%.

FY 1998 Year-End Performance		
Operations Office	Treated	Disposed
Albuquerque	73	140
Chicago	41	3
Idaho	226	13
Nevada	13	263
Oak Ridge	3,002	3,511
Oakland	212	269
Ohio	150	1
Richland	22	0
Rocky Flats	4,126	6,527
Savannah River	3,183	0
Total	11,048	10,727

Table 2. Mixed Low-level Waste Disposal
(Volume in cubic meters)

- ✓ Dispose of approximately 30,000 cubic meters of Low-level Waste (LLW)

The Department disposed of 29,762 cubic meters of LLW, successfully meeting the performance commitment.

FY 1998 Year-End Performance		
Operations Office	Disposed	Shipped to DOE Site for Disposal
Albuquerque	1,314	575
Chicago	118	425
Idaho	3,264	2
Nevada	11,059	0
Oak Ridge	3,344	104
Oakland	214	3,303
Ohio	106	2,649
Richland	5,920	0
Rocky Flats	0	2,669
Savannah River	4,423	0
Total	29,762	9,727

Table 3. Low-level Waste Disposal
(Volume in cubic meters)

Programmatic

- ✓ Award the Oak Ridge TRU Waste Treatment Privatization contract.
On August 20, 1998, the Department awarded the Oak Ridge TRU waste treatment contract to the Foster Wheeler Environmental Corporation.
(For more about the project, see Section IV, Spotlight on the Program.)

- ✓ Authorize commencement of the Tank Waste Remediation System (TWRS) contract Phase 1B at the Hanford site in Washington.
On August 24, 1998, the Department authorized BNFL, Inc. to proceed forward with Phase 1B of the TWRS privatization project.
(For more about the project, see Section IV, Spotlight on the Program.)

Award the Carlsbad Area Office Contact-Handled TRU Waste Transportation Services Privatization Contract.

Award of this contract has been delayed pending resolution of issues associated with the delay in the start of shipments to WIPP.

II. FY 1998 Accomplishments

The Waste Management Program's key accomplishments during FY 1998 are:

Richland Operations Office (Washington)

- Awarded the TWRS Privatization Contract to BNFL.
- Started the Waste Receiving and Processing (WRAP) facility TRU processing line.
- Closed Unreviewed Safety Question (USQ) for organic complexants, resolved safety issues, and took 18 organic complexant tanks off the watch list.
- Closed flammable gas USQ for double-shell and single-shell tanks.
- Disposed of 5,920 cubic meters of LLW.
- Started or resumed interim stabilization on 3 tanks.
- Completed tank farm cross-site transfer line.

Oakland Operations Office (California)

- Began operations at the Lawrence Livermore National Laboratory's Expedited Technology Demonstration Project to test the molten salt oxidation technology for the treatment of mixed waste.

Nevada Operations Office (Nevada)

- Disposed of 11,059 cubic meters of LLW.
- Negotiated a Joint Federal/State Oversight Agreement of Low-Level Waste Disposal Program with the State of Nevada.
- Issued *Environmental Assessment for Intermodal (rail and truck) Transportation of Low-level Radioactive Waste (LLW) to the Nevada Test Site*.

Albuquerque Operations Office (New Mexico)

- Characterized, certified, and repackaged 17 shipments of non-mixed Los Alamos National Laboratory TRU waste for shipment to WIPP (this does not include actual shipment for disposal).
- Transferred responsibility of newly generated waste to Defense Program landlord at Sandia, Los Alamos, and Pantex.

Carlsbad Area Office (New Mexico)

- Received EPA certification that WIPP meets Federal regulations for the disposal of transuranic radioactive waste.
- Draft RCRA Part B Permit issued by the State of New Mexico for public comment.
- Certified Rocky Flats, Idaho, and Los Alamos waste characterization programs.
- Issued Record of Decision (ROD) for transuranic waste disposal at WIPP based on the *Waste Isolation Pilot Plant Disposal Phase Supplemental Environmental Impact Statement*.
- Successfully completed the Operational Readiness Review and Declaration of Readiness.

Idaho Operations Office (Idaho)

- Completed EPA Certification inspection of TRU waste characterization and quality control program with one minor corrective action request.
- Exceeded FY 1998 goal for LLW disposal. Year-end LLW volume disposed was 3,264 cubic meters.
- Submitted RCRA Part B permit application, TSCA permit application, and National Emissions Standards for Hazardous Air Pollutants (NESHAPs) and Air Permit to Construct applications for the Advanced Mixed Waste Treatment Project (AMWTP). NESHAPs permit granted by EPA on 9/15/98.
- Issued Draft Environmental Impact Statement for AMWTP.
- Approved AMWTP ES&H Program Operating Plan.
- Published draft final radiologic Composite Analysis for LLW disposal at the Radioactive Waste Management Complex.
- Completed calcining of non-sodium-bearing liquid HLW four months ahead of the Settlement Agreement milestone.

Chicago Operations Office (Illinois)

- Completed design and construction of the Waste Management Facility upgrade at Argonne National Laboratory-East.

West Valley Demonstration Project (New York)

- Completed Phase I vitrification ahead of schedule and under budget.
- Produced 81 canisters of HLW.

Headquarters (Washington, DC)

- Issued ROD for the treatment and storage of transuranic waste based on the *Waste Management Programmatic Environmental Impact Statement*.
- Conducted discussions with the National Governors' Association on feasible and cost-effective options for disposing MLLW and LLW.
- Complete baseline disposition maps to show the planned pathways to move waste from inventory or generation through required processing to treatment or stabilization and on to final disposition.
- Issued draft Order 435.1, *Radioactive Waste Management*, manual, guidance, and technical basis.
- Issued the ROD for treatment of non-wastewater hazardous waste.

Savannah River Operations Office (South Carolina)

- Produced 250 canisters of HLW at the Defense Waste Processing Facility (DWPF).
- Closed the second high-level waste tank.
- Began assessment of alternatives for In-Tank Precipitation System.
- Processed 1,031,526 pounds of waste at the Consolidated Incineration Facility.
- Disposed of 4,423 cubic meters of LLW.

Oak Ridge Operations Office (Tennessee)

- Awarded the Broad Spectrum Contracts for MLLW Treatment.
- Awarded the Oak Ridge TRU Waste Treatment Privatization Contract.

Rocky Flats Environmental Technology Center (Colorado)

- Completed shipment of 6,527 cubic meters of saltcrete/podcrete MLLW to Envirocare for treatment and disposal.
- Shipped 2,669 cubic meters of LLW to Nevada Test Site.
- Completed EPA Certification inspection of TRU waste characterization and quality control program.

III. FY 1998 Program Results

The Waste Management Program's FY 1998 goals and priorities were aimed at reducing risks, reducing fixed costs, meeting regulatory requirements, and working collaboratively with regulators and stakeholders. The Program focused on moving more waste from storage into treatment and disposal, and seeking a more integrated system of treatment, storage, and disposal. Resulting cost efficiencies will be applied to accelerating cleanup and site closures across the Environmental Management (EM) complex. The year-end results of the Program's key goals and priorities are:

Focus the Waste Management Program on resolution of the most significant environmental risks.

Treat high-level waste stored at SRS to produce 200 canisters of solidified waste for disposal .. *complete*
 Close the second high-level waste storage tank at SRS *complete*
 Complete Phase I of WVDP *complete*
 Complete TWRS Privatization authorization to proceed *complete*
 Initiate the Sealed Radioactive Source
 Recovery Program *full initiation delayed due to budget constraints in FY98*
 Complete calcining the existing INEEL non-sodium-bearing high-level waste *complete*

Reduce waste management mortgage and support costs to provide resources for expanded program scope and risk reduction.

Implement the EM Privatization Program for selected waste management projects by awarding waste management services procurements:
 Transuranic waste treatment at Oak Ridge *complete*
 Transuranic waste transportation services for
 contact-handled transuranic waste *contract award delayed*
 Improve business management practices through program assessments, cost analyses, and benchmarking:
 Prepare joint EM-HR DOE benchmarking initiative *no longer being pursued*
 Complete DOE benchmarking initiative *no longer being pursued*
 Perform Hazardous Waste Cost Analysis *Phase I complete*
 Issue FY 1997 Performance Measures Report *complete*
 Develop Radiological Control Criteria to facilitate the safe and cost-effective management of very low activity mixed waste *ongoing*
 Evaluate FY 1997 Waste Management Re-engineering pilot projects *complete*

Ensure Waste Management programs have an adequate regulatory framework to meet environmental, safety, and health requirements.

Issue DOE Order 435.1:
 Issue draft for public comment *complete*
 Issue final *expected February 1999*
 Propose closing Recommendation 96-1 to the DNFSB *being re-evaluated*
 Implement DNFSB Recommendation 95-2 *ongoing*

Incorporate pollution prevention, including waste minimization, recycling, and reuse of materials into the Waste Management Program.

Review site waste minimization activities and issue policy guidance *complete*
 Conduct a pilot project on recycling of radioactive scrap metal
 for high-level waste canisters *project revised to make different use of scrap metal*

Work in partnership with regional and national regulators and stakeholder groups to explain the Waste Management Program and identify innovative strategies to reduce the risks and costs.

Continue partnership with the National Governors' Association and other stakeholder groups to reach agreement on:
 Waste Management treatment and disposal system configuration *ongoing*
 Environmental Management (EM) Paths to Closure *ongoing*
 Work with regulators and stakeholders to ensure compliance
 with environmental requirements and agreements *ongoing*

Deploy technologies that will significantly benefit waste management operations in the next decade.

Increase program participation in the development and deployment of new technologies *ongoing*

Establish a Waste Management system configuration that supports the "Accelerating Cleanup: Paths to Closure" goal.

Issue the Waste Management Programmatic EIS Records of Decision for:
 Transuranic Waste Treatment *complete*
 Hazardous Waste Treatment *complete*
 High-level Waste Storage *scheduled for FY 1999*
 Mixed Low-level/Low-level Waste Treatment and Disposal *scheduled for FY 1999*
 Issue Request for Proposal for low-level
 and mixed low-level waste disposal *pending results of policy analysis*
 Begin disposal of transuranic waste
 from LANL, INEEL, and RFETS at WIPP *on hold due to regulatory and legal challenges*
 Obtain Site Certifications and ready transuranic waste for disposal at WIPP *ongoing*
 Ship transuranic waste to WIPP for disposal:
 Rocky Flats Environmental Technology Site
 - 126 cubic meters *on hold due to regulatory and legal challenges*
 Los Alamos National Laboratory
 - 194 cubic meters *on hold due to regulatory and legal challenges*
 Idaho National Engineering and Environmental Laboratory
 - 68 cubic meters *on hold due to regulatory and legal challenges*
 Dispose of 30,000 cubic meters of low-level waste *complete*
 Dispose of 4,000 cubic meters of mixed low-level waste *complete*

IV. Spotlight on the Program

Records of Decision (RODS)

The DOE issued three Records of Decision (RODS) in FY 1998, establishing disposition paths for two waste types in the waste management complex. The first ROD, based on the *Waste Isolation Pilot Plant Disposal Phase Supplemental Environmental Impact Statement*, outlined the decision to dispose of defense transuranic waste at the Waste Isolation Pilot Plant (WIPP); treat transuranic waste, if required, to meet the WIPP Waste Acceptance Criteria; and transport transuranic waste by truck, but reserve the option to use commercial rail in the future.

The second ROD, based on the *Final Waste Management Programmatic Environmental Impact Statement* (WM PEIS), outlined the decision to treat and store existing transuranic waste or transuranic waste generated in the future on the site where it was or will be generated prior to sending it to WIPP. The exception to this decision is transuranic waste from Sandia National Laboratories, which will be sent to Los Alamos for treatment and storage prior to disposal at WIPP. The TRU waste RODs were issued in January 1998.

In July, 1998, the Department issued the ROD for the treatment of non-wastewater hazardous waste generated at DOE sites. This decision established the disposition path for the annual treatment of approximately 3,440 metric tons of non-wastewater hazardous waste that is currently being transported to commercial facilities. DOE has decided to continue to use off-site facilities for the treatment of major portions of the non-wastewater hazardous waste. The Oak Ridge Reservation in Tennessee and the Savannah River Site will treat some of their own non-wastewater hazardous waste on site, where capacity is available in existing facilities and where this is economically favorable. The Department does not propose any transfers of this waste among DOE sites.

Policy Analysis

On March 19, 1998, the DOE published in the *Federal Register* a Notice of Intent to conduct a policy analysis concerning the Department's use of commercial facilities for low-level waste (LLW) and mixed low-level waste (MLLW) disposal. The goal of the policy analysis is to assist the Department in determining whether to continue its current practice of using existing, licensed commercial disposal facilities on an exception basis, or change its policies or practices relating to the use of commercial or other privately owned facilities for the disposal of LLW and MLLW. Significant input in support of the current policy has been provided by States and other Federal agencies. The analysis is nearing completion, with a final decision expected early in calendar year 1999.

Developing Options for the Disposal of Mixed Low-Level and Low-Level Waste

The Office of Waste Management has continued its efforts to discuss and share with stakeholders various options for disposal of low-level waste (LLW) and mixed low-level waste (MLLW), as the Department prepares to issue Records of Decision (RODs) in FY 1999. DOE evaluated programmatic LLW and MLLW disposal alternatives in its *Final Waste Management Programmatic Environmental Impact Statement* (WM PEIS), issued in May 1997. The Final WM

PEIS stated the Department's preference to regionally dispose of LLW and MLLW at two or three sites from six candidate sites (Savannah River, Oak Ridge, Nevada Test Site, Los Alamos, Hanford, and Idaho National Environmental and Engineering Laboratory), but the WM PEIS did not select preferred sites. To enable the selection of preferred regional disposal sites, DOE has analyzed six options for LLW disposal and five options for MLLW disposal. These options focus on where to dispose the LLW and MLLW that cannot be disposed of on site.

Figure 1 indicates the workshops and meetings in which DOE has participated to discuss disposal options with States, Tribal Nations, regulators, and stakeholders. The purpose of these discussions has been to allow a period of dialogue on the possible disposal options before the Department makes its final decision(s). In the WM PEIS, the Department committed that, following consultations, it will notify the public as to the specific sites it prefers for disposal of LLW and MLLW by publishing a notice in the *Federal Register*. The Department will not issue a ROD for LLW or MLLW disposal until at least 30 days after the publication of its preferred disposal sites in the *Federal Register*.

Figure 1.

Discussions with States, Tribes, and Stakeholders

Meeting Date	State, Tribal, or Stakeholder Group
March 1998	National Governors' Association
April 1998	National Association of Attorneys General
June 1998	Intersite Discussions convened by the League of Women Voters
July 1998	Transportation External Coordination Working Group
August 1998	Site-Specific Advisory Board LLW Seminar
October 1998	State and Tribal Governments Working Group
October 1998	Energy Communities Alliance
October 1998	Environmental Management Advisory Board
October 1998	National Governors' Association

Revised Radioactive Waste Management Order

On July 31, 1998, the DOE announced the availability of a revised draft DOE Order and Manual on radioactive waste management. DOE is revising the existing DOE Order (DOE 5820.2A) to reflect advances in radioactive waste management practices and changes within DOE since the Order was issued in 1988. The draft Order and Manual are the result of a five-step process initiated by DOE in 1996:

- First, a systems engineering approach was used to identify waste management functions and activities.
- Second, hazards associated with the functions and activities were assessed and actions to mitigate the hazards were identified.
- Third, existing internal and external requirements were analyzed to determine if they addressed the identified hazards.
- Fourth, DOE developed requirements, consistent with existing regulations and DOE directives, to address the hazards; and documented the basis for each requirement.
- Finally, DOE made the Order and Manual available for public review.

Many individuals and organizations took the opportunity to provide DOE with comments on the Order and Manual. Although the public comment period for the revised draft Order and Manual ended September 8, 1998, DOE continued to receive comments into the first of October 1998. The Department is working to reflect appropriately all comments it has received.

To accompany the Order and Manual, the Department is developing guidance to assist personnel involved in radioactive waste management in implementing the Order and Manual. As the fiscal year ended, staff working on the Order revision were evaluating comments and revising the Order and Manual, or incorporating information into guidance, as appropriate.

Performance Assessment and Composite Analysis Review and Approvals

Waste Management made significant progress toward meeting its commitments regarding completion of radiological assessments at the six DOE sites with low-level waste (LLW) disposal facilities: Los Alamos National Laboratory, Oak Ridge, Savannah River Site, Nevada Test Site, Idaho National Environmental and Engineering Laboratory, and Hanford Site. Following a recommendation from the Defense Nuclear Facilities Safety Board, DOE committed to completing the performance assessment (PA) process required by DOE Order 5820.2A for its LLW disposal facilities. In addition, a commitment was made to prepare a composite analysis (CA) for each site, which evaluates the potential dose impact at the future boundary of the DOE site from the LLW facility and any other sources expected to be left at the site. Development of a PA and CA would be the basis for Headquarters to issue a disposal authorization statement for continued operations of the LLW disposal facilities.

By the end of the fiscal year, the six sites had submitted the necessary PAs and CAs for Headquarters to review. Headquarters has completed the review and issued the disposal authorization statement for the LLW disposal facility at Los Alamos. The review process is underway for the Oak Ridge, Savannah River, and Nevada PAs and CAs, and the Idaho and Hanford Site reviews are scheduled to begin in FY 1999.

High-Level Waste

The high-level waste (HLW) program achieved several major milestones during this fiscal year, led by the completion of the primary vitrification campaign at the West Valley Demonstration Project in New York. During this first phase of vitrification operations, which began in 1996 and ended in June 1998, a total of 18 million curies of highly radioactive waste were immobilized into solid glass, producing a total of 212 canisters for future repository disposal. By the end of FY 1998, combined vitrified HLW canister production at West Valley and at Savannah River's Defense Waste Processing Facility was 331 canisters, exceeding the program's annual performance measure of 288 canisters. Other achievements throughout the DOE complex include operational closure of a second HLW storage tank at Savannah River; completion of calcining of all non-sodium-bearing liquid HLW and initiation of the HLW and Facilities Disposition Environmental Impact Statement at Idaho; and award of the privatized agreement for HLW treatment at Hanford. A major challenge to the program has been the need to identify a replacement pretreatment/separation technology for the HLW salt stream at Savannah River. Over 100 potential approaches have been evaluated and the choices have been narrowed down to 4 possible technologies.

TWRS Privatization

On August 24, 1998, DOE authorized British Nuclear Fuels Limited, Inc. (BNFL) to proceed with the second part of the design phase of the Richland Tank Waste Remediation System (TWRS) privatization project. The goal of the TWRS project is to treat and immobilize the high-level waste stored in underground tanks at the Hanford Site, and produce a stable, vitrified (glass) form, utilizing contractor-owned and contractor-operated facilities. The first phase of the project ended in January 1998, and included completion of the business, regulatory, cost, and financing proposal for the project. During the initial 24 months of this second part of the design phase of the contract, BNFL will complete 30% of the treatment facility design, prepare to start construction, and obtain financing. The TWRS program is a major component of the Department-wide initiative to privatize procurement as a means to achieve substantial cost and schedule improvements over the traditional contracting approach.

WIPP Ready to Begin Disposal Operations

On May 13, 1998, the Secretary of Energy notified Congress that the Waste Isolation Pilot Plant is ready for disposal operations. In June, the Department decided to suspend initiating disposal operations until regulatory and legal challenges raised by the State of New Mexico and others could be addressed. The Department hopes resolution of the current litigation will clear the way for disposal operations to begin early in calendar year 1999. This first-of-a-kind deep geologic repository, located near Carlsbad, New Mexico, is critical to helping resolve the challenge of cleaning up defense-related transuranic radioactive waste located at DOE facilities across the Nation.

Oak Ridge Transuranic Waste Treatment Project

On August 20, 1998, the DOE awarded a contract to Foster Wheeler Environmental Corporation to retrieve and treat the sludge from eight 50,000-gallon tanks located in the Melton Valley area and repackage Oak Ridge solid transuranic (TRU) waste to meet disposal requirements, thereby satisfying the State of Tennessee Commissioner's Order requirements. The first phase of the project will be a fixed price procurement for the permitting, licensing, and designing of the treatment facility. The second phase consists of construction of the treatment facilities, pre-operational system testing, and approval from the Waste Isolation Pilot Plant*. Construction is scheduled to begin late in FY 2000. DOE analyzed three different treatment options for meeting the requirements of the Commissioner's Order, which requires DOE to initiate treatment of TRU waste by January 2003, and chose the privatization option to reduce costs and improve schedules.

** Wording has been revised slightly from the printed hardcopy version.*

Broad Spectrum Procurement

The Oak Ridge Broad Spectrum Treatment contracts to consolidate mixed low-level waste (MLLW) treatment services were signed in June 1998 with Waste Control Specialists and East Tennessee Materials and Energy Corporation. This set of five contracts will give DOE access to fixed price mixed waste treatment options that are not currently available on site for the wide range of MLLW streams generated at DOE facilities. Treatment operations began in October 1998.

Advanced Mixed Waste Treatment Project

DOE continues to move forward with the Advanced Mixed Waste Treatment Project (AMWTP), through a privatized contract with British Nuclear Fuels Limited, Inc. (BNFL), to retrieve, characterize, and treat 65,000 cubic meters of transuranic and alpha-contaminated mixed low-level waste located in retrievable storage at the Radioactive Waste Management Complex at the Idaho National Engineering and Environmental Laboratory. The treatment facility is a key element of the 1995 court-ordered Settlement Agreement between the State of Idaho, the Navy, and DOE, requiring in part that DOE ship all of its stored transuranic waste out of the state by a target date of December 31, 2015, and no later than December 31, 2018. The project is currently in Phase I, which includes successfully obtaining the necessary permits and approvals to initiate facility construction in FY 1999. BNFL submitted the AMWTP Resource Conservation and Recovery Act Part B and Toxic Substances Control Act permit applications and the National Emissions Standards for Hazardous Air Pollutants (NESHAPs) and Air Permit to Construct applications to the regulatory agencies over the January to April 1998 time frame. The NESHAPs permit was granted by EPA in September 1998. DOE issued an AMWTP Draft Environmental Impact Statement (EIS) in July 1998. DOE also approved BNFL's Environment, Safety, and Health Program Operating Plan in July 1998. A Final EIS is scheduled for January 1999, and a Record of Decision on whether to proceed with construction and operation of the proposed AMWTP facility is planned for February 1999.

Waste Processing at Hanford's WRAP Facility

Processing of transuranic waste through the glovebox lines began September 17, 1998, at Hanford's Waste Receiving and Processing (WRAP) facility after the facility received its start-up approval. The WRAP has the capability of examining, characterizing, verifying, and packaging transuranic, low-level, and mixed low-level waste for final disposition. The WRAP is located in the 200-West Area and is Hanford's first major solid waste processing plant. It is the first operating facility in the DOE Complex designed specifically to prepare transuranic waste for shipment to the Waste Isolation Pilot Plant in Carlsbad, New Mexico.

The initial wastes being processed by WRAP have been stored at Hanford's Central Waste Complex, a series of 20 storage buildings. There are currently several thousand containers of waste stored in the buildings, and approximately 38,000 drums stored in trenches at the burial grounds. It is estimated that more than 70,000 drums of waste will be processed through the WRAP during its lifetime.

Complex-wide Integration

The Office of Environmental Management (EM) complex-wide integration initiative took a major step forward in FY 1998 with the completion of the "baseline disposition maps." Waste Management led the effort to develop baseline disposition maps for each site showing planned pathways to move waste from inventory or generation to treatment or stabilization, and on to final disposition. These maps were developed to support the *Accelerating Cleanup: Paths to Closure* planning. Similar disposition maps are being developed for nuclear materials to support nuclear materials integration. Based on the information developed in the initial maps (which will be improved and updated annually), progress is being made in linking waste disposition to transportation as well as science and technology needs. These maps are also being used as tools to communicate DOE's plans with States, Tribal Nations, and stakeholders.

EM program integration was formalized in FY 1998 by signing a working charter that directly involves field office managers and the Assistant Secretary of EM, as well as field and headquarters staff. Through the efforts of 12 program area integration teams (comprised of subject matter experts in the field and headquarters), integration opportunities are being identified and evaluated for all of the waste types, plutonium and other nuclear materials, decontamination and decommissioning, deactivation, reindustrialization, science and technology, and transportation. Over 23 integration opportunities, identified earlier by an independent EM integration team, are currently in the evaluation stage.

Deployment of New Technologies

The Waste Management program continues to support cooperative efforts to develop and deploy innovative technologies that will benefit waste management operations. The program also participates in the Accelerated Site Technology Deployment program. Among the projects that Waste Management supported in FY 1998 are:

- AEA Fluidic Sampler at Savannah River Site, which promises several benefits and cost savings, including on-line sample analysis as compared with grab samples, better quality characterization, and less radiation exposure to workers.
- Improved Systems for Tank Sludge Retrieval, Conditioning and Transfer project and Modular Evaporator and Ion Exchange Systems for Waste Reduction in Tanks at Oak Ridge.
- Decontamination and Volume Reduction System at Albuquerque, which targets the cleanup of glove boxes contaminated with plutonium residues.
- Retrieval and tank heel cleanup using the Remote Tool Delivery Robotic System, also known as TARZAN.

Re-engineering Waste Management

The Waste Management Re-engineering Project is designed to make the waste generator financially responsible for newly generated waste to encourage waste minimization and reduce costs. Effective October 1, 1998, the responsibility for newly generated waste at the Pantex Plant, Sandia National Laboratories (California and New Mexico), and the Los Alamos National Laboratory transferred to the Office of Defense Programs (DP). In addition, DP is also taking responsibility for legacy waste at Pantex and Sandia, while the Office of Environmental Management (EM) is retaining responsibility for legacy waste at Los Alamos. Efforts are ongoing to continue to transfer financial responsibility to the generators. It is expected that EM and the Office of Science will reach agreement on the transfer of the Ames Laboratory, the Princeton Plasma Physics Laboratory, and the Argonne National Laboratory-East in the future.

Radioactive Source Recovery Program

The Radioactive Source Recovery Program (RSRP) is responsible for sealed sources that exceed the U.S. Nuclear Regulatory Commission limit for commercial disposal as low-level waste. DOE is responsible for disposal of this material under the Low-Level Radioactive Waste Policy Amendments Act of 1985. During FY 1998, the RSRP at Los Alamos National Laboratory developed shielded shipping containers to improve the program's ability to ship high energy sources. These new shipping containers were tested as part of the pilot program to retrieve certain high risk sources from the private sector. The pilot program to test the laboratory's ability to ship and receive americium neutron sources will be completed in FY 1999.

V. FY 1999 Future Outlook

DOE's Waste Management Program will continue to reduce risks, reduce fixed costs, meet regulatory commitments, and work collaboratively with regulators and stakeholders. Opportunities to accelerate cleanup and reduce costs through integration of complex-wide activities will be pursued. The Program's focus remains on moving more waste from storage into treatment and disposal. In support of these ongoing efforts, the Waste Management Program has established the following key performance objectives for FY 1999:

- Begin disposal operations of non-mixed TRU waste at WIPP; receive RCRA Part B permit for receipt and disposal of mixed waste at WIPP.
- Treat HLW stored at Savannah River Site to produce 200 canisters of vitrified HLW.
- Transfer 500,000 curies from the tank farm to the vitrification facility at West Valley Demonstration Project and produce about 15 canisters of vitrified HLW.
- Initiate interim stabilization pumping operations in four single-shell tanks (S-102, S-103, S-106, SX-106) at Hanford.
- Initiate the second sluicing campaign of waste tank C-106 at Hanford.
- Dispose of about 70,000 cubic meters of LLW.
- Dispose of about 15,000 cubic meters of MLLW.
- Achieve resolution of DNFSB 96-1 In Tank Precipitation (ITP) System at Savannah River Site.
- Issue DOE Order 435.1 on Radioactive Waste Management.
- Issue LLW/MLLW Treatment and Disposal Records of Decision.
- Issue HLW Storage Record of Decision.
- Close out DNFSB 92-4 and 93-5 at the Hanford Site for systems engineering and waste characterization of the HLW tank waste remediation system.
- Issue Record of Decision for the AMWTP at INEEL, allowing start of construction of this major TRU waste and alpha LLW treatment facility.
- Award the contract-handled TRU waste transportation services privatization contract for WIPP.

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Featured on the back cover:

(top left) A West Valley vitrification technician uses two of 19 in-cell cameras to monitor canister handling through four-foot-thick shield windows.

(top right) External view of Tank 20 at Savannah River, South Carolina, the second high-level waste storage tank closed at the site.

(bottom left) A 2 1/2 ton, stainless steel canister filled with vitrified radioactive waste is lowered into the decontamination station at the West Valley Demonstration Project. Each canister is cleaned with an acid solution before being transferred into temporary storage.

(bottom right) Solidified waste being stored in metal drums at the Oak Ridge Gaseous Diffusion Plant.

